

Advanced Materials**RenCast® 6405 Resin / Ren® 6405-1 Hardener**

POLYURETHANE ELASTOMER
A RIGID HIGH STRENGTH SHORE 75 ± 5D ELASTOMER

DESCRIPTION :

RenCast® 6405 Resin / Ren® 6405-1 Hardener is a low-viscosity, white, two-component casting polyurethane elastomer ideal for prototypes and rigid parts. RenCast® 6405 R / Ren® 6405-1 H cures to a tough, tear-resistant, rigid material without containing MOCA⁽¹⁾ or TDI⁽²⁾. RenCast® 6405 R / Ren® 6405-1 H is easily mixed and reproduces fine detail with a minimum of air entrapment and cures at room temperature.

APPLICATIONS :

Prototyping and short-run production of injection molded parts and thermoformed parts.

MIXING INTRUSCTIONS :

Reaction Ratio 100R to 100H by weight
 90R to 100H by volume

Mixing: Stir each component thoroughly before use. Weigh each component accurately (± 5%) into clean containers. Thoroughly mix resin and hardener together (minimum 3 minutes) scraping container sidewalls, bottom and mixing stick several times to assure a uniform mix.

TYPICAL MIXED PROPERTIES :

Property	ASTM Test Method	Test Values ⁽³⁾
Gel Time and Viscosity Profile (150g)	<u>Time (min.)</u>	<u>Viscosity (cP)</u>
	5	220
	15	250
Color	Resin Hardener Visual	gelled
		Amber
Viscosity	Resin Hardener D-2393	White
		40 – 50 cP
Demold time (for most applications)		800 – 900 cP
Cure time (for ultimate properties)		24 hours
		7 days

⁽¹⁾MOCA – 4,4' methylene bis (2-chloroaniline)

⁽²⁾TDI – toluene diisocyanate

⁽³⁾ Tested @ 77 °F (25 °C)

TYPICAL CURED PROPERTIES :

Property	ASTM Test Method	Test Values ⁽¹⁾	Test Values ⁽²⁾
Density (g/cc)	D-792	1.13	1.13
Hardness (Shore D)	D-2240	75 ± 5	75 ± 5
Tensile Strength (psi)	D-638 @ 20"/min.	4,900 (33,800 kPa)	5,460 (37,650 kPa)
Ultimate Elongation (%)	D-638 @ 20"/min.	10.6	8.4
Tear Strength (ppi)	D-624 @ 20"/min.	352	307
Compression Yield Strength (psi)	DIE C	(61.6 kN/m)	(53.7 kN/m)
	D-695	6,400 (44,100 kPa)	6,800 (46,800kPa)
Ultimate Flexural Strength (psi)	D-790	6,600 (45,500 kPa)	8,100 (55,800 kPa)
Deflection Temperature (264 psi)	D-648	124 °F (51 °C)	146 °F (63 °C)
Coefficient of Thermal Expansion (in/in °F)	D-3386	5.8 x 10 ⁻⁵	5.6 x 10 ⁻⁵
Notched IZOD Impact Strength	D-256	.71 ft-lb/in	.55 ft-lb/in
		(.38 Joules/cm)	(.30 Joules/cm)
Linear Shrinkage (in/in)	Mold #0	D-2566	0.0007
	Mold #1 (0.875" deep)		0.0029
			0.0044
			0.0055

⁽¹⁾ Cure Schedule – 7 days @ 77°F (25 °C), tested @ 77 °F

⁽²⁾ Cure Schedule – 24 hours @ 77°F (25 °C), + 16 hours @ 176 °F (80 °C) (supported)

NOTE : Typical Properties – These physical properties are reported as typical test values obtained by our test laboratory. If assistance is needed establishing product specifications, please consult with our Quality Control Department.

CURING INSTRUCTIONS :

Although room temperature epoxies will normally set up to a rigid, demoldable state within 24 hours at room temperature (75 °F ± 5 °F), these systems reach their full cure after seven days at room temperature. A full cure can be accelerated by applying heat after the part has set rigid. We recommend a post cure of 176 °F for a minimum of 16 hours. (Add to this adequate time to bring the part to the post cure temperature.) After cure, the part should be cooled at a slow rate so as not to shock the part thermally.

Uniform heat distribution is also required during post cure ; concentrated heat, such as that directed from a lamp, can cause warp. An elevated temperature cure will slightly increase the shrinkage compared to a room temperature cure.

HANDLING :**RenCast® 6405 Resin and Ren® 6405-1 Hardener**

This product is moisture-sensitive and packaged under a blanket of dry nitrogen. Maintain factory seal, after use reblanket with dry nitrogen and tightly reseal.

Work in a well ventilated area and use clean, dry tools for mixing and applying. For two component system, combine the resin and hardener according to mix ration. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 18 °C (65 °F) when mixing.

RenCast® 6405 Resin

This product may crystallize upon storage. If crystallized, vent container and heat to 125 – 145 °F until crystals dissolve. Stir well after product has liquefied.

Ren® 6405-1 Hardener

Stir well before use. This material will separate.

STORAGE :

RenCast® 6405 Resin / Ren® 6405-1 Hardener should be stored in a dry place, in the sealed original container, at temperatures between +2°C and +40°C (+35.6°F and 104°F). Under these storage conditions, the shelf life is 2 years. The product should not be exposed to direct sunlight.

PRECAUTIONARY STATEMENT :

Huntsman Advanced Materials Americas LLC maintains up-to-date Material Safety Data Sheets (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

First Aid!

Refer to MSDS as mentioned above.

KEEP OUT OF REACH OF CHILDREN**FOR PROFESSIONAL AND INDUSTRIAL USE ONLY**

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